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1: Biotechnology (N Y), 1991 Feb;9(2):188-91.

Construction of a 7-aminocephalosporanic acid (7ACA) biosynthetic operon and direct production of 7ACA in Acremonium chrysogenum.

Isogai T, Fukagawa M, Aramori I, Iwami M, Kojo H, Ono T, Ueda Y, Kohsaka M, Imanaka H.

Exploratory Research Laboratories, Fujisawa Pharmaceutical Co., Ltd, Ibaraki, Japan.

We have used cDNA encoding D-amino acid oxidase, and genomic DNA encoding cephalosporin acylase from *Fusarium solani* and *Pseudomonas diminuta*, respectively, to construct a novel hybrid 7-aminocephalosporanic acid (7ACA) biosynthetic operon under the control of regulatory elements from the alkaline protease gene of *Acremonium chrysogenum*. Transformants of *A. chrysogenum* BC2116, a high cephalosporin-producing strain, containing this operon, synthesized and secreted low levels of 7ACA. Although the amounts are not yet commercially significant, this represents the first microbial production of 7ACA and demonstrates the feasibility of introducing new biosynthetic capabilities into industrial microorganisms by combining fungal and bacterial genes.

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[Biotechnol Biochem. 1994](#)

Cloning and nucleotide sequence of the alkaline protease gene from *Fusarium* sp. S-19-5 and expression in *Acremonium*
[Biotechnol Biochem. 1994](#)

Cloning and nucleotide sequences of the complementary and genomic DNAs for the alkaline protease from *Acremonium*
[Biotechnol Biochem. 1994](#)

Recombinant *Acremonium chrysogenum* strains for the industrial production of cephalosporins
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Nucleotide sequence and expression in *Escherichia coli* of the cephalosporin acylase gene of a

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